

CLAIMS

1. A device for cooling an exothermic electrical component (1), of the type comprising a metal member  
5 forming a radiator (7) thermally coupled to a metal mass of the component forming a heat dissipating mass (5) of the component (1), characterized in that the radiator (7) is thermally coupled to the dissipating mass (5) by at least one heat sink (10) formed by an  
10 autogenous weld between one face of the dissipating mass (5), called the dissipating face (5A), and one face (7A) of the radiator (7), opposite each other.
2. The device as claimed in claim 1, in which at  
15 least one element among the dissipating mass (5) and the radiator (7) is made from copper.
3. The device as claimed in either of claims 1 and 2, in which the component (1) comprises at least one  
20 heat source and in which the heat sink (10) is aligned with this source substantially parallel to a direction perpendicular to the dissipating face (5A).
4. The device as claimed in claim 3, in which the  
25 heat source comprises a semiconductor (2).
5. The device as claimed in any one of claims 1 to 4, in which the area of the dissipating face (5A) included in the heat sink (10) corresponds to at least  
30 5% of the area of the dissipating face (5A).
6. The device as claimed in any one of claims 1 to 5, in which the sink (10) also forms a means for fixing the component (1) to the radiator (7).
- 35 7. The device as claimed in any one of claims 1 to 6, in which the sink (10) also forms a means of electrical conduction between the component (1) and the radiator (7).

8. The device as claimed in any one of claims 1 to 7, in which the radiator (7) has a plate shape and is provided with one large face (7A) opposite the  
5 dissipating mass (5) and one large face (7B), opposite to the preceding face, bearing on a support (9).
9. The device as claimed in claim 8, in which the  
10 support (9) is made from a material transparent to a wavelength of a laser welding head.
10. The device as claimed in either of claims 8 and 9, in which the radiator (7) is provided with two small opposed faces connected by overmolding of material (8),  
15 preferably of plastic, to two substantially parallel electrically conducting bars (3).
11. The device as claimed in any one of claims 1 to 10, comprising a plurality of heat sinks (10).  
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12. A method for producing a device as claimed in claim 11, characterized in that a set of heat sinks (10) is formed by autogenous welding in two steps during each of which one subset of sinks (10) is  
25 formed, these two steps being separated by a step of fixing the component (1) to a support (3) separate from the radiator (7).
13. The method as claimed in claim 12,  
30 characterized in that the autogenous welding is carried out using a laser welding head.
14. The method as claimed in claim 13, of a device as claimed in claim 9, in which the autogenous welding  
35 is carried out through the support (9).

15. The method as claimed in claim 12, characterized in that the autogenous welding is carried out using a vacuum electron beam (11).